

What is claimed is:

1. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor.

2. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor, wherein the tyrosine kinase inhibitor is selected from the group consisting of Genistein, Lavendustin A, K252a, and a combination thereof.

3. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor, wherein the neuropathological state comprises a condition selected from the group consisting of persistent pain, arthritis, ulcerative colitis, inflammatory bowel disease, Crohn's disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, epileptogenesis, and viral invasion.

4. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor selected from the group consisting of Genistein, Lavendustin A, K252a, and a combination thereof, wherein the neuropathological state comprises a condition selected from the group consisting of persistent pain, arthritis, ulcerative colitis, inflammatory bowel disease, Crohn's disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, epileptogenesis, and viral invasion.

5. A method for treating a neuropathological state in a subject, the method comprising:  
administering to the subject an effective amount of a compound that decreases the amount of NR1 subunit associated with a nucleus of a cell of the subject, wherein the cell comprises an NMDA glutamate receptor.

6. The method of claim 5 wherein the cell is a neuron.

7. The method of claim 5 wherein the neuron is a sensitized neuron.

8. The method of claim 5 wherein the neuron is prevented from being converted to a sensitized state.

9. A method for treating a neuropathological state in a subject, the method comprising:  
administering to the subject an effective amount of a compound that decreases the amount of NR1 subunit associated with a nucleus of a cell of the subject, wherein the cell comprises an NMDA glutamate receptor, and wherein the neuropathological state comprises a condition selected from the group consisting of persistent pain, arthritis, ulcerative colitis, inflammatory bowel disease, Crohn's disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, epileptogenesis, and viral invasion.

10. A method for treating a neuropathological state in a subject, the method comprising:  
administering to the subject an effective amount of a tyrosine kinase inhibitor that decreases the amount of NR1 subunit associated with a nucleus of a cell of the subject, wherein the cell comprises an NMDA glutamate receptor.

11. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor that decreases the amount of NR1 subunit associated with a nucleus of a cell of the subject, wherein the cell comprises an NMDA glutamate receptor, and wherein the tyrosine kinase inhibitor is selected from the group consisting of Genistein, Lavendustin A, K252a, and a combination thereof.

12. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor that decreases the amount of NR1 subunit associated with a nucleus of a cell of the subject, wherein the cell comprises an NMDA glutamate receptor, wherein the neuropathological state comprises a condition selected from the group consisting of persistent pain, arthritis, ulcerative colitis, inflammatory bowel disease, Crohn's disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, epileptogenesis, and viral invasion, and wherein the tyrosine kinase inhibitor is selected from the group consisting of Genistein, Lavendustin A, K252a, and a combination thereof.

13. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a compound that decreases the amount of Tumor Necrosis Factor  $\alpha$  (TNF $\alpha$ ) produced by a cell of the subject, wherein the cell comprises an NMDA glutamate receptor.

14. The method of claim 13 wherein the cell is a synovial cell.

15. A method for treating a neuropathological state in a subject, the method



disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, and viral invasion.

19. A method for treating a neuropathological state in a subject, the method comprising:

administering to the subject an effective amount of a tyrosine kinase inhibitor that decreases the amount of  $\text{TNF}\alpha$  produced by a cell of the subject, wherein the cell comprises an NMDA glutamate receptor, wherein the neuropathological state comprises a condition selected from the group consisting of persistent pain, arthritis, ulcerative colitis, inflammatory bowel disease, Crohn's disease, pancreatitis, asthma, stroke, brain injury, spinal cord injury, and viral invasion, and wherein the tyrosine kinase inhibitor is selected from the group consisting of Genistein, Lavendustin A, K252a, and a combination thereof.

20. A method for identifying a compound that alters NR1 subunit distribution in a cell, the method comprising:

contacting a cell with an effective amount of the compound;  
activating an NMDA glutamate receptor present on the cell; and  
detecting the distribution of NR1 subunit in the cell, wherein detection of an alteration in the distribution of NR1 subunit in the cell contacted with the compound relative to the distribution of NR1 subunit in a cell not contacted with the compound indicates an alteration in the distribution of NR1 subunit.

21. A method for identifying a compound that alters NR1 subunit distribution in a cell, the method comprising:

contacting a cell with an effective amount of the compound;  
activating an NMDA glutamate receptor present on the cell; and  
detecting the distribution of NR1 subunit in the cell, wherein detection of an

alteration in the distribution of NR1 subunit in the cell contacted with the compound relative to the distribution of NR1 subunit in a cell not contacted with the compound indicates an alteration in the distribution of NR1 subunit, wherein the cell is a neuron.

22. A method for identifying a compound that alters the production of TNF $\alpha$  by a cell, the method comprising:

- contacting a cell with an effective amount of the compound;
- activating an NMDA glutamate receptor present on the cell; and
- detecting the amount of TNF $\alpha$  produced by the cell, wherein detection of an alteration in the amount of TNF $\alpha$  produced by the cell contacted with the compound relative to the amount of TNF $\alpha$  produced by a cell not contacted with the compound indicates an alteration in the amount of TNF $\alpha$  produced by the cell.

23. A method for identifying a compound that alters the production of TNF $\alpha$  by a cell, the method comprising:

- contacting a cell with an effective amount of the compound;
- activating an NMDA glutamate receptor present on the cell; and
- detecting the amount of TNF $\alpha$  produced by the cell, wherein detection of an alteration in the amount of TNF $\alpha$  produced by the cell contacted with the compound relative to the amount of TNF $\alpha$  produced by a cell not contacted with the compound indicates an alteration in the amount of TNF $\alpha$  produced by the cell, wherein the cell is a synovial cell.

24. A method for identifying a tyrosine kinase inhibitor that alters NR1 subunit distribution in a cell, the method comprising:

- contacting a cell with an effective amount of the tyrosine kinase inhibitor;



contacting a cell with an effective amount of the compound;  
activating an NMDA glutamate receptor present on the cell; and  
detecting the distribution of NR1 subunit in the cell, wherein  
detection of an alteration in the distribution of NR1 subunit in the cell contacted  
with the compound relative to the distribution of NR1 subunit in a cell not  
contacted with the compound indicates an alteration in the distribution of NR1  
subunit.

30. The method of claim 29 wherein the amount of NR1 subunit associated with  
a nucleus of a cell of the subject is decreased.

31. The method of claim 29 wherein the amount of NR1 subunit associated with  
a nucleus of a cell of the subject is increased.